AMENDED SPECIFICATION

SCREWLESS FACEPLATE COMPONENTS AND ASSEMBLY

BACKGROUND OF THE INVENTION

Field of the Invention

(0001) Embodiments of the invention are generally directed to the field of electrical wiring components, and more particularly to a screwless faceplate assembly and the components thereof, for use in conjunction with an electrical receptacle box or the like.

Description of Related Art

(0002) Conventional electrical box cover plates, referred to herein as faceplates, are typically constructed in the form of a flat plastic or metallized plate having one or more openings that provide access to a wired device mounted in the electrical box. The purpose of the faceplate is to provide a decorative cover for the electrical box installation while also preventing operator exposure to the interior of the electrical box, which contains electrical wiring. As used herein, "wired device" refers generally to any of a variety of electrical power control/distribution devices including, but not limited to, ON/OFF switches, outlet receptacles, dimmers, motor speed selector switches and the like, to certain communications/data connectors such as telephone jacks, coaxial cable connectors, television (TV) ~~TV~~ antenna connectors, and computer network cable connectors, informational devices such as clocks, thermometers, security systems, and so on.

(0003) Wiring devices conforming to the National Electrical Manufacturers Association (NEMA) ~~NEMA~~ standards include a metal yoke or mounting strap with oversized mounting slots that permit horizontal position adjustment of the wiring device

within an electrical box. The yoke strap also includes one or more threaded mounting holes for attaching a faceplate onto the yoke strap by screw fasteners, thereby

aspects, the attachment structure forms at least part of the outer perimeter edge or is an integral portion of the outer perimeter surface. In a single gang aspect, the attachment structure is a lip extending along a portion of the outer vertical perimeter surfaces. In a multi-gang aspect, the attachment structure includes a lip extending along a portion of the outer vertical perimeter surfaces and an engagement assembly integrated into the outer horizontal perimeter edges. The engagement assembly may comprise two adjacent lips. All of the lips (alternatively, wings or catch-edges, and equivalent structures or edge-surface formations) are intended to be removeably engageable with complimentary attachment regions and structures in a faceplate component of a screw less faceplate assembly. Various aspects of the subplate component relate to the substantial rigidity of the subplate. In one aspect, the subplate component is a metallized material. In another aspect, the subplate is made in whole or in part of a material having a Young's Modulus of between about six million pounds per square inch (6Mpsi) ~~6Mpsi~~ to 42Mpsi. Alternatively, the subplate component is otherwise physically reinforced by a material or structural modification, such as a continuous or segmented gusset rib, for example, in the front or back surface. The subplate component has an outer perimeter dimension that is as large or larger than a maximum perimeter dimension of a face surface of an "old-work" electrical box such that it will cover the perimeter region of an old-work electrical box. In another aspect of the subplate embodiment, the subplate includes at least one set (pair) of vertically-aligned posts for locating an electrical device with respect to the subplate frame/opening. In an aspect, the subplate includes N sets of separate vertically-aligned posts for locating N electrical devices with respect to the subplate frame/opening. In various aspects, the subplate opening is sized to

accommodate a single-gang or multi-gang devices. According to aspects of the embodiment, the outer horizontal edges of the subplate have a separation distance of about 4.55 inches, and the outer vertical edges have a separation

co-engagement means only located on, or immediately adjacent, outer perimeter surfaces thereof as illustrated in Figs. 1, 2 and 4A.

(0031) An exemplary aspect of a single-gang subplate component 12 is illustrated in Figs.2A-C. The subplate component 12 is a single monolithic structure in the form of a frame 20 as shown in Fig. 2B for a single-gang structure; in Fig. 6D for a 2-gang structure; in Fig. 8 for a 3-gang structure; and in Fig. 5A for a 4-gang structure. Embodiments of the subplate component, the faceplate component, and the screwless faceplate assembly may include up to N = 8-gang capacity; however, the description will refer only to embodiments for $N \leq 4$-gang. The frame 20 has an outer perimeter 26 defined by opposing outer horizontal surfaces 26a and opposing outer vertical surfaces 26b. As shown in Fig. 2A for a single-gang component, surface 26b has an integral attachment structure 16 in the form of a lip 30. The lip 30 is continuous and extends along a portion of vertical edge 26b. The lip 30 provides a surface that can cooperatively engage a complimentary attachment structure on a faceplate as will be further described below. Fig. 6A shows a 2-gang subplate component 12. In addition to the integral attachment structure 16 along a portion of vertical edge 26b, a single engagement assembly 36 forms an integral part of horizontal edge 26a. The engagement assembly 36 has two adjacent lips 36a, 36b that can cooperatively engage a complimentary attachment structure on a faceplate. The presence of the engagement assembly 36 in a multiple-gang subplate component provides additional screwless fastening integrity for the faceplate assembly. Figs. 8 and 9 show exemplary 3-gang and 4-gang subplates, respectively. Mounting apertures 55_N (N=gang number) are provided for mounting an electrical device to an electrical box with conventional screw fasteners. In an exemplary

aspect, the subplate component 12 has up/down symmetry with respect to its assembly orientation as shown in Fig. 6A and elsewhere.

(0032) An alternative aspect of the subplate component 12 is illustrated in Figs. 2D-G for a single-gang component. The subplate has a disengagement region 27 in a portion of the outer horizontal perimeter surface 26a. The disengagement region 27 will accommodate the insertion of a screwdriver tip or similar device through a complimentary disengagement aperture in a faceplate component of the assembly.

(0033) The subplate component frame 20 shown in Figs. 2A,B for a single-gang component is further defined by an inner perimeter 22 having smooth and continuous inner opposing horizontal surfaces and opposing vertical surfaces, which frame an uninterrupted subplate opening 24. The opening 24 is sized for accommodating an N-gang electrical device body as illustrated in Figs. 6D, 8 and 9.

(0034) The outer perimeter 26 of the subplate component 12 has a height dimension, H, and a width dimension, W, as illustrated Fig. 9. As shown in Fig. 2A for a single gang device, it is sized to cover the maximum perimeter of an old-work electrical box. In an exemplary single gain device embodiment, H=4.55 inches, W=2.85 inches. For N=2, H=4.55 inches, W=4.662 inches to accommodate a standard width device mounting of 1.812 inches as illustrated in Fig. 6E. For N=3, H=4.55 inches, W=6.474 inches; and for N=4, H=4.55 inches, W=8.286 inches (*see* Table 1).

i. **TABLE 1**

N	H (in)	W (in)
1	4.55	2.85
2	4.55	4.66
3	4.55	6.47
4	4.55	8.29